DOCUMENT RESUME

ED 448 384 CG 030 578

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TITLE Adolescent Behavior Problems: Peer Pressure "Is" All It Is Cracked Up To Be.
PUB DATE 2000-04-00
NOTE 37p.; Paper presented at the Annual Conference of the American Educational Research Association (New Orleans, LA, April 24-28, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Behavior Patterns; *Behavior Problems; Illegal Drug Use; *Longitudinal Studies; National Surveys; *Peer Influence; Peer Relationship; Secondary Education; *Secondary School Students; Student Surveys; *Substance Abuse
IDENTIFIERS *National Longitudinal Survey of Youth

ABSTRACT

Student misbehavior is a problem affecting schools across the nation. Many school districts are searching for programs to remediate and reform problematic behavior in students. In order to develop successful programs, it is important first to understand what constitutes student misbehavior and second to determine reasons for students' behavior. The subjects for this study are participants in the National Longitudinal Study of 1988. Factors explaining students' behavior were looked at in 1988, 1990, and 1992, thus following them from 8th grade through their senior year. The data from this study confirms the existence of a common misbehavior construct comprised of both misbehavior and substance abuse items. Findings also support the ecological theory of behavior, where discipline problems are a result of a complex interaction of influences and thus should be treated within the system, rather than individually. The influence of an adolescent's peer group was found to explain student behavior throughout the high school years better than any other variable. Having academically-oriented friends seemed to encourage students to behave well and to help them resist drugs and alcohol. Negative peer influence seemed to greatly increase a student's risk for behavior problems and substance abuse. (Contains 12 tables and 24 references.) (JDM)

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ED 448 384

Running head: ADOLESCENT BEHAVIOR PROBLEMS

ADOLESCENT BEHAVIOR PROBLEMS:

PEER PRESSURE *IS* ALL IT IS CRACKED UP TO BE

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Abstract

Student misbehavior is a problem affecting schools across the nation and around the world. Many districts and schools are aggressively searching for programs to remediate and reform problematic behavior in students. However, to develop successful programs, it is important to understand first what constitutes student misbehavior and second why students behave the way they do. The subjects for this study are participants in the National Education Longitudinal Study of 1988, a nationally representative sample of 8th grade schools and students. Factors explaining student behavior focus on three time points – 1988, 1990, and 1992 – following students from 8th grade through their senior year.

The results from this study confirm the existence of a common general misbehavior construct comprised of both misbehavior and substance abuse items, as consistent with problem behavior theory (Jessor & Jessor, 1977). Findings also support the ecological theory of behavior, where discipline problems are a result of a complex interaction of influences and should thus be treated within the system (rather than individually).

Upon examination of the relative importance of known risk and protective factors for adolescent misbehavior, the influence of an adolescent's peers was found to explain student behavior throughout the high school years better than any other variable. Having academically oriented friends seemed to encourage students to behave well and to help them resist drugs and alcohol. On the other hand, a negative peer influence seemed to greatly increase a student's risk for behavior problems and substance abuse. It is hoped that the findings from this research can be used to help schools design appropriate programs for the treatment and prevention of adolescent behavior problems.

ADOLESCENT BEHAVIOR PROBLEMS:

PEER PRESSURE *IS* ALL IT IS CRACKED UP TO BE

Introduction

Earlier this year, the nation was shocked by the murder of an elementary school student by her classmate. Last spring, the nation was perhaps even more horrified by the senseless massacre of 13 students and a teacher in a suburban Colorado high school. In March 1998, we were just as stunned by the brutal murder of four young children and their teacher as they exited their Arkansas middle school for a false fire alarm. What disturbed adults and children alike was that these ambushes on school grounds were planned and executed by fellow students. These incidents occurred on the heels of a Kentucky high school shooting where an adolescent boy opened fire on a student prayer circle, killing three students and wounding five.

While these are extreme cases of children committing crimes on school grounds, student misbehavior, including both criminal and non-criminal activity, has long been a problem in our public schools. Each year for the past decade in the Annual Gallup Poll of the Public's Attitudes Toward the Public Schools, safety, drug use, and lack of discipline were most frequently cited as major problems facing public schools (Snyder, Hoffman, & Geddes, 1996). Teachers too report student indiscipline as a major problem in today's schools. In the National Household Education Survey, teachers reported student misbehavior as an even greater problem than did parents (Zill & Nolin, 1994).

Student misbehavior is one issue that both parents and educators agree is a problem, and it is also an issue whose influences neither parents nor educators fully understand. Hence, violent incidents such as those in Colorado, Arkansas, and Kentucky as well as the more general problem of student misbehavior seem to invoke much introspection as well as finger-pointing.

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Many parents blame the teachers and the school environment. Many educators blame the parents and the home environment of students. Some seem to think that an instability or vulnerability inherent in the child caused him or her to be violent. While many others believe that the media – including music, television, movies, and video games – has been irresponsible by their portrayal of youth, sex, drugs, and violence. However, laying the blame for student behavior problems is not productive, as it does not change what has happened nor does it prevent what atrocities might happen in the future. What is important is our understanding of what influences behavior problems in children and further, our ability to design programs based on this understanding to prevent and treat these problems.

Theoretical Framework

In the broadest sense, student misbehavior is any activity, overt or covert, that interferes with teaching and learning. Activities such as unpreparedness for class, talking in class, fighting, or tardiness might disrupt the process of teaching and learning of others in the classroom or school. Under this definition, misbehavior is also any activity that hinders the misbehaving student's ability to learn. Examples of these activities would be excessive absenteeism, cheating, and alcohol use. Manifestations of student behavior problems can range from mild indiscipline to criminal acts committed in the school and juvenile delinquency. While the most common student behavior problems involve noncriminal conduct (Moles, 1990), some researchers who have examined the similarities between adolescent criminal and noncriminal behaviors have found the two to have similar antecedents (Berg & Nursten, 1996; Dryfoos, 1990).

Behavioral Theories

Conceptual explanations for behavior problems range from genetic abnormalities inherent in the misbehaving individual to context-specific societal interpretations of behavior

problems. Hyman (1997) summarizes five such conceptual models of behavior problems: psychodynamic, biophysical, behavioral/cognitive-behavioral, humanistic, and ecological.

The psychodynamic theory, based on Freud's (1938) work, attributes problem behavior to inadequate personality development, especially from birth to age seven. Believers in the psychodynamic model strongly relate student misbehavior to factors, such as low self-esteem, caused by parents and early caregivers.

A second model is based on the belief that behavior problems are caused by a genetic defect, a disease, an injury, or a disorder. In other words, the biophysical approach to student misbehavior would associate poor health, inadequate nutrition, and a physical disability with behavior problems.

Borrowing heavily from Skinnerian theory, the behavioral model postulates that behaviors are learned responses and that through reinforcements and punishments behaviors can be changed (Skinner, 1971). The cognitive-behavioral model is simply an extension of the behavioral model that includes verbal reinforcements.

An additional model, humanistic, is based on Maslow's (1970) hierarchy of needs. Under the humanistic model, children are believed to be innately good, yet misbehavior results when student needs have become frustrated. This theory points to large schools as a source of frustration as a student's need for individuality and a sense of freedom is compromised. Glasser's Control Theory (see Butchart and McEwan, 1998) is based on both the behavioral and the humanistic models. Control theory states that students display inappropriate behaviors when their basic needs are not being met and that students should be manipulated (rather than be reasoned with) to improve behavior.

While many argue that *individuals* should be treated for behavior problems – due to inadequate personality development, physical disorder, need deprivation, or inappropriate behavior reinforcements – some argue that discipline problems should instead be treated within the *system*. The ecological model hypothesizes that behaviors are a result of a complex interaction of many forces acting between an individual and his or her environment. Forces that affect behavior might include the size of birth cohorts, family factors, individual factors, political and economic structures, school-related factors, teachers, peers, and the media. Misbehavior occurs when the student's values, attitudes, and norms are not being addressed or supported by the environment. With this theory, discipline problems are addressed within the system and not within the individual. This research examines student misbehavior from an ecological perspective, that is, in the context of individual, familial, institutional, and social influences.

Behavioral Influences

Many important influences of student behavior problems have been found time and time again in the research. Individual influences of problem behavior range from poor self-esteem, low achievement, low school attachment, and low or no participation in school activities. Familial influences of misbehavior include an inconsistent discipline style, a stressful family environment, and low parent involvement. School or institutional influences involve factors such as school size and school climate. Researchers have found a large school size (defined by enrollment) and a poor school climate to be associated with student behavior problems. Research on the social influences of behavior problems centers on one factor – the influence of a student's peer group. See Giancola (1998) for a detailed accounting of the research in each of these four areas.

Methods

Participants

Subjects for this study are participants in the National Education Longitudinal Study of 1988 (NELS), a nationally representative sample of 8th grade schools and students (see NCES, 1996). Factors explaining student behavior focus on three time points – 1988, 1990, and 1992 – following students from 8th grade through their senior year.

A total of 1,052 eighth-grade schools (about 3% of the nation's approximately 38,000 eighth-grade schools) were chosen at random to participate in the NELS program. Base year survey completion rates for NELS yielded 1,035 schools and 24,599 students. The weighted aggregate of these 24,599 students is representative of the roster of approximately 3,000,000 eighth-grade students enrolled in public and private schools in 1988. This sample of students was followed through high school at two-year measurement intervals.

For the purposes of this study, students who did not participate in all three school-year surveys -- the 1988 base year, the 1990 first follow-up, and the 1992 second follow-up -- were eliminated from the NELS:88 population. This sample of 16,489 students is referred to as the 88-92 panel. Further, in order to determine the effect of school size on misbehavior without confounding it with possible effects resulting from school transfer, only panel students who were enrolled in the same high school during both the 1990 and 1992 measurement cycles were retained. Thus, high school dropouts and students who transferred schools between the 1990 and 1992 surveys were not included in the analyses. Finally, students who did not have a complete set of associated self-report, parent, and school data at each relevant time point were eliminated. Students who met the above criteria were drawn from the NELS:88 population; the resulting sample size was 3,919 students. NELS:88 weights were used in conjunction with the data to

compensate for unequal probabilities of selection and to adjust for the effects of survey nonresponse.

The effects of missing data are apparent when parameters of demographic characteristics of the 8th grade population in 1988 are compared to the same parameters based on the weighted subsample. For instance, the sample results in a higher percentage of females than males. Further, whites are over-represented in the subsample while blacks and hispanics are underrepresented. Proportionally more students from the Northeast and Midwest and fewer students from the South and West were retained in the subsample than existed in the population. Students from high socioeconomic status families had less missing data than those from low socioeconomic status families. Table 1 provides a comparison of the relevant demographic characteristics of the 8th grade population in 1988 to those of the weighted subsample.

Procedure

Scaling. Latent factor structures of student misbehavior as well as variables that aid in the explanation of student misbehavior were derived through common factor analysis of selected NELS items. Factor structures were tested for internal consistency and generalizability by gender, race, and socioeconomic status. Internal consistency was measured using Cronbach's alpha. Cross-year factor structures and subgroup factor structures were compared using Wrigley-Neuhaus coefficients of congruence (Guadagnoli & Velicer, 1991). The dependent variable and scaled explanatory variables were constructed through unit-weighting the factor solutions. Each variable was transformed into a T-score using area conversion. Modeling focused on the 15% of students on both extremes of the behavior T-score distribution and attempted to explain what factors characterized these students.

Table 1

Demographic Characteristics of 8th Grade Population and Subsample

	Population	Subsample
Gender		
Male	50.2%	44.0%
Female	49.8%	56.0%
Race		
Black	13.2%	6.1%
Hispanic	10.4%	5.4%
White	71.7%	84.3%
Region		
Northeast	19.2%	24.7%
Midwest	25.7%	33.6%
South	35.7%	29.5%
West	19.4%	12.2%
SES		
Low	23.6%	15.0%
Medium Low	24.9%	23.1%
Medium High	25.5%	27.4%
High	26.0%	34.5%

Note. Population parameters are based on a nationally representative weighted sample of 16,489 eighth-grade students in 1988. Subsample parameters are based on a weighted subsample of 3,919 students extracted from the full sample.

Modeling. A series of exploratory univariate and multivariate logistic regression models (see Hosmer and Lemeshow, 1989) were used to determine risk factors for and protective factors against behavior problems. The dependent variable, student misbehavior (derived through common factor analysis as described above), was modeled for both the first and second NELS follow-ups, when most students were in 10th and 12th grade respectively. Exploratory models included *individual* (self-concept, attitudes towards school, reading achievement, mathematics achievement, race, sex, and age), *familial* (family structure, family socioeconomic status, and parental involvement), *social* (peer influence), and *institutional* variables (school type, school enrollment, community type, and school climate). From these exploratory models, three final models were constructed that parsimoniously explain 10th and 12th grade misbehavior. When possible, analyses included base year data, when all subjects were in eighth grade. However, because many of the 1990 follow-up survey items were not included in the base year student survey, analyses including base year data were limited. All analyses were performed at the individual student level.NELS weights were used in conjunction with the data to compensate for unequal probabilities of selection and to adjust for the effects of survey nonresponse.

Design Effect. Because the NELS:88 sample design was quite complex and included stratification, disproportionate sampling of certain strata, and clustered probability sampling, the statistical estimates calculated from this data are subject to sampling variability. To adjust for the design effect, WesVar Complex Samples Software was used to calculate standard errors and significance levels, while SAS was used to estimate regression coefficients and odds ratios. A Jacknife Repeated Replication (JRR) method was used to calculate appropriate standard errors based on the NELS complex sampling design.

Results

The primary objective of this research was to determine whether scale development procedures would yield reliable, invariant, and generalizable scaled variables representing adolescent misbehavior, as well as variables that explain misbehavior in adolescence. Thus, the purpose of the first part of this section is to arithmetically derive a set of psychometrically sound, standardized scaled variables based on misbehavior and substance items, as well as social and institutional items. The secondary objective of this research was to use these scaled variables to model student misbehavior throughout the high school years. Hence, the second and third parts of this section discuss the prevalence testing and model development of adolescent misbehavior, respectively.

Part 1: Scale Development

Response Variables. The intent of this portion of the research was to construct a set of variables describing adolescent misbehavior that was uniformly applicable in 1990 and 1992 when most subjects were in 10^{th} grade and 12^{th} grade, respectively. These variables were also to be generalizable across relevant demographic groups. Several strategies were explored.

The first strategy independently treated 1990 and 1992 follow-up data, resolved latent structures, and determined whether resultant structures were sufficiently similar to permit an assertion of equivalence. The second strategy pooled first and second follow-up data, resolved a composite latent structure, and determined post hoc whether the dimensions were sufficiently generalizable to warrant equivalence. The third strategy forced an apparently logical structure and attempted to confirm the acceptability of this structure for both 1990 and 1992 data. All three strategies were applied and assessed.

The first strategy yielded a one-factor solution comprised of misbehavior and substance abuse items. One- through six- factor models were considered for explaining the variance among the 20 items. Each factor structure was evaluated against the following criteria: (a) minimum variance, (b) minimum scree, (c) appreciable factor loadings, and (d) parsimonious coverage of the data. Factor relationships were analyzed according to the magnitude and sign of the loadings, internal consistency, and coefficients of congruence.

The two- and three-factor models failed the test of parsimonious coverage of the data, because several items loaded on multiple factors. Similarly, the five- and six-factor models failed the test of parsimonious coverage of the data due to several factors having a small number of appreciable loadings. The six-factor model also failed the minimum variance and appreciable factor loadings criteria. The four-factor orthogonal, varimax-rotated model made the most psychological sense, but the fourth factor (misbehavior) had poor reliability. In fact, in all possible solutions the substance abuse factors were highly reliable (except for some invariance problems with cocaine for females and blacks in 1992) while the misbehavior factors had poor or fair reliability. Yet, when misbehavior items and substance items were combined in one structure, reliability was maintained or improved.

The second and third strategies were employed in an effort to resolve a latent structure that separated misbehavior and substance abuse. However, the misbehavior items were still dependent upon the substance items to maintain reliability. To confirm the strength of the resulting one-factor solution, 12 random variables were submitted into the factor analysis along with the misbehavior and substance abuse items (Wood & Pataryn, 1996). As anticipated, the substance abuse and misbehavior items retained their appreciable loadings while the random variables occupied the hyperplane.

This one-factor solution, Student Misbehavior, was viable with an overall internal consistency reliability of .87 at the first follow-up. It was also generalizable to the second follow-up as well as by gender, race, and socioeconomic status. Table 2 presents the factor structure, item-total correlations, and prevalence for the one-factor solution. This model accounted for 28.3% of the variance among misbehavior and substance abuse items. Tables 3 and 4 detail the generality and reliability, respectively, of the one-factor solution.

Explanatory Variables. The intent of this part of the research was to construct a set of variables that aid in explaining adolescent misbehavior and that were uniformly applicable in 1990 and 1992 when most subjects were in 10^{th} and 12^{th} grade, respectively. These variables were also to be generalizable across relevant demographic groups. Two- through eight-factor models were considered for explaining the variance among student self-report items relating to school participation, self-concept, peer influence, attitudes towards school, and parent involvement. Each factor structure was evaluated against the criteria detailed in the previous section.

The two-factor model failed the test of parsimonious coverage of the data and did not make psychological sense. Likewise, the four- through eight-factor models failed the test of parsimonious coverage of the data, because at least one factor in each solution had a small number of appreciable loadings. The eight-factor model also failed the minimum variance criteria. The three-factor solution met all criteria. This three-factor structure was viable with overall internal consistency reliabilities ranging from .79 to .86 at the first follow-up. It was also generalizable to the second follow-up as well as by gender, race, and socioeconomic status. The factor solution, along with item-total correlations and prevalence estimates, is presented in Table 5. Tables 6 and 7 detail the generality and reliability, respectively, of the three-factor solution.

Table 2

Exploratory Common Factor Structure for Student Misbehavior

Student Misbehavior	Loading[a]	Item-total r[b]		% prevalence[c]	
		1990	1992	1990	1992
Marijuana use in last 12 months	.77	.67	.69	10.5	16.9
Marijuana use in lifetime	.76	.67	.66	15.6	25.6
Marijuana use in last 30 days	.69	.62	.64	4.9	9.5
Alcohol use in last 12 months	.62	.54	.54	70.7	79.1
Alcohol use in last 30 days	.61	.54	.56	40.6	52.7
Cocaine use in last 12 months	.60	.54	.49	1.2	2.0
Cocaine use in lifetime	.59	.55	.55	2.4	3.9
Daily cigarette smoking	.59	.55	.49	14.4	20.1
Alcohol use in lifetime	.56	.48	.48	84.3	90.8
Cut or skip classes	.50	.47	.45	30.0	45.1
Got in trouble	.49	.46	.49	38.1	30.9
Cocaine use in last 30 days	.49	.45	.37	.4	.6
In-school suspension	.42	.41	.37	6.4	5.7
Out-of-school suspension	.41	.40	.35	3.1	3.0
Arrested	.37	.36	.38	1.8	1.9
Late for School	.37	.34	.35	67.2	76.1

Note. N = 3,919. For convenience of presentation, the wording of some items has been abbreviated.

[a]Factor loadings $\geq$ .35 are considered appreciable.

[b]Each value is a Pearson product-moment correlation with the respective item excluded from total factor score.

[c]Each value corresponds to the item difficulty index multiplied by 100.

Table 3

Coefficients of Congruence for Misbehavior Factor across Random, Gender, Race, and SES Subsamples

		Generality	
Subsample	N	1990	1992
Full Sample	3,919	--	99
Invariance[a]	500	98	98
Males	1,726	99	99
Females	2,193	99	98
Whites	3,305	99	99
Minorities	614	97	97
Low SES	1,492	99	99
High SES	2,427	99	99

Note. Entries are Wrigley-Neuhaus coefficients (Guadagnoli & Velicer, 1991) with decimals omitted for convenient presentation. Values indicate similarity of the respective dimension extracted from the 1990 NELS sample to the counterpart dimension extracted for a given subsample. Common factor analyses for subsamples proceeded exactly as that for the full sample.

[a]Coefficients are averages of 10 random subsamples (n=500) compared to the 1990 solution for the full sample.

Table 4

Internal Consistency of Misbehavior Factor Overall and in Random, Gender, Race, and SES Subsamples

		Internal consistency	
Subsample	N	1990	1992
Full Sample	3,919	.87	.86
Invariance[a]	500	.88	.88
Males	1,726	.88	.87
Females	2,193	.85	.83
Whites	3,305	.88	.87
Minorities	614	.79	.80
Low SES	1,492	.86	.86
High SES	2,427	.87	.86

Note. Entries are coefficient alpha computed for the indicated subsample.

[a]Coefficients are averages of 10 random subsamples (n=500) compared to the 1990 solution for the full sample.

Table 5

Exploratory Common Factor Structure for Self-Concept, Peer Influence, and Parent Involvement

	Loading[a]	Item-total r[b]		% prevalence[c]	
		1990	1992	1990	1992
SELF-CONCEPT					
At times, I think I am no good at all	.68	.60	.64	34.1	30.0
On the whole, I am not satisfied with myself	.67	.62	.67	12.8	9.7
I do not feel good about myself	.63	.59	.64	7.4	6.5
I feel useless at times	.63	.55	.59	48.2	43.5
I do not have much to proud of	.62	.40	.59	11.3	10.4
I do not feel I am a person of worth	.61	.57	.62	6.7	5.5
My plans hardly ever work out	.58	.54	.55	15.1	14.2
I am not able to do things as well as others	.54	.50	.57	7.0	5.2
When I get ahead, something stops it	.54	.49	.57	19.3	18.4
When I make plans, I am certain they won't work	.51	.50	.54	17.7	15.8
I don't have enough control over my life	.49	.45	.41	18.5	19.4
Not important to friends to get good grades	.68	.65	.69	4.7	7.0
Not important to friends to continue education past high school	.67	.63	.58	6.6	7.6
Not important to friends to study	.63	.64	.67	8.0	10.4
Not important to friends to attend class regularly	.59	.60	.64	3.0	5.6

(continued on next page)

(Table 5 continued)

	Loading[a]	Item-total r[b]		% prevalence[c]	
		1990	1992	1990	1992
PEER INFLUENCE					
Not important to friends to finish high school	.59	.53	.51	1.4	2.4
Not important to friends to do volunteer work	.42	.38	.38	62.4	65.5
Not important to friends to participate in religious activity	.41	.41	.41	48.5	53.6
Not important to be popular with students	.39	--	--	10.4	20.0
Not important to friends to play sports	.36	--	--	25.5	41.5
PARENT INVOLVEMENT					
Never discuss school activities with parents	.61	.58	.64	15.4	20.3
Never discuss school courses with parents	.60	.58	.59	12.5	23.4
Never discuss class studies with parents	.58	.58	.62	16.6	18.4
Never discuss going to college with parents	.54	.56	.60	9.4	11.4
Never discuss grades with parents	.48	.50	.57	4.1	5.9
Never discuss ACT/SAT tests with parents	.43	.42	.57	51.5	30.2

Note. N = 3,919. For convenience of presentation, the wording of some items has been abbreviated.

[a]Factor loadings ≥ .35 are considered appreciable.

[b]Each value is a Pearson product-moment correlation with the respective item excluded from total factor score. Items that were not appreciable or not used to calculate final reliability estimates were not used in the total factor score calculation.

[c]Each value corresponds to the item difficulty index multiplied by 100.

Table 6

Coefficients of Congruence for Self-Concept, Parent Involvement, and Peer Influence Factors Across Random, Gender, Race, and SES Subsamples

			Generality			
			Core Factors			Average
	Subsample	N	Self-Concept	Parent Involvement	Peer Influence	All Factors
1990	Invariance[a]	500	99 (29)	92 (38)	94 (30)	95 (32)
	Males	1,726	99 (24)	97 (43)	99 (30)	98 (33)
	Females	2,193	99 (27)	97 (46)	98 (32)	98 (35)
	Whites	3,305	99 (32)	99 (43)	99 (32)	99 (35)
	Minorities	614	98 (21)	90 (41)	90 (28)	93 (30)
	Low SES	1,492	99 (22)	98 (40)	99 (35)	99 (32)
	High SES	2,427	99 (37)	98 (37)	99 (35)	99 (36)
	Full Sample	3,919	99 (29)	96 (39)	98 (27)	97 (31)
1992	Invariance[a]	500	97 (30)	89 (40)	93 (30)	92 (34)
	Males	1,726	98 (26)	93 (37)	97 (28)	96 (30)
	Females	2,193	98 (25)	90 (45)	96 (25)	95 (32)
	Whites	3,305	99 (31)	96 (39)	98 (28)	98 (33)
	Minorities	614	97 (14)	86 (39)	96 (22)	93 (25)
	Low SES	1,492	99 (22)	95 (34)	97 (31)	97 (29)
	High SES	2,427	99 (29)	94 (39)	97 (31)	97 (33)

Note. Entries are Wrigley-Neuhaus coefficients (Guadagnoli & Velicer, 1991) with decimals omitted for convenient presentation. Nonparenthetical values indicate similarity of the respective dimension extracted from the 1990 NELS sample to the counterpart dimension extracted for a given subsample. Parenthetical values indicate average similarity of the specified dimension to all other (noncounterpart) dimensions extracted from the subsample. Common factor analyses for subsamples proceeded exactly as that for the full sample.

[a]Coefficients are averages of 10 random subsamples (n=500) compared to the 1990 solution for the full sample.

Table 7

Internal Consistency of Self-Concept, Parent Involvement, and Peer Influence Factors Overall and in Random, Gender, Race, and SES Subsamples

	Subsample	N	Internal consistency		
			Self-Concept	Parent Involvement	Peer Influence[d]
1990	Full Sample	3,919	.86	.79	.81
	Invariance[a]	500	.86	.78	.80
	Males	1,726	.84	.78	.81
	Females	2,193	.87	.79	.80
	Whites	3,305	.86	.78	.81
	Minorities	614	.85	.84	.82
	Low SES	1,492	.85	.79	.81
	High SES	2,427	.87	.77	.81
1992	Full Sample	3,919	.88	.83	.81
	Invariance[a]	500	.88	.83	.81
	Males	1,726	.87	.83	.81
	Females	2,193	.88	.82	.80
	Whites	3,305	.88	.82	.81
	Minorities	614	.85	.86	.81
	Low SES	1,492	.87	.84	.81
	High SES	2,427	.88	.81	.82

Note. Entries are coefficient alpha computed for the indicated subsample.

[a]Coefficients are averages of 10 random subsamples (n=500) compared to the 1990 solution for the full sample.

[b]Final reliability estimates for peer influence exclude the two items with the lowest appreciable factor loadings.

Factor relationships of the three-factor model were analyzed according the magnitude and sign of the loadings. The first factor accounted for over one-half (57.1%) of the common variance with appreciable loadings on 11 of the 13 self-concept items. Thus, this factor was named Self-Concept, as it relates to general self-concept that is it is not academically oriented.

The second factor accounts for over one-quarter (27.3%) of the common variance with appreciable loadings on 9 of the 12 peer influence items. Hence, this factor was named Peer Influence. This factor relates primarily to academic peer influence, though a few items related to social interactions with peers are included. The two lowest loading items were eliminated from the peer influence factor to increase the reliability of the construct.

The third factor accounts for less than one-fifth (15.6%) of the common variance with appreciable loadings on all six of the parent involvement items. This factor was named Parent Involvement and it deals primarily with parent involvement in school-related matters. It was hoped that two additional factors would be realized, one comprised of items relating to student participation in school activities and one comprised of student-report attitudes towards school items. Two such factors did not emerge from the data.

One- through four-factor models were considered for explaining the variance among school climate items from the school administrator survey. The two- through four-factor models failed the test of parsimonious coverage of the data due to several items loading appreciably on more than one factor. The solution was a one-factor model that accounted for 26.2% of the variance with appreciable loadings on 10 of the 13 school climate items. This one-factor solution, School Climate, was viable with an overall internal consistency reliability of .82 at the first follow-up. It was also generalizable to the second follow-up as well as by gender, race, and socioeconomic status. Table 8 presents the factor structure, item-total correlations, and

prevalence; tables 9 and 10 detail the generality and reliability, respectively, for the one-factor school climate solution.

Base Year Variables. The intent of this portion of the research was to construct variables from base year data, when all subjects were in eighth grade, that explain high school misbehavior. Because many of the 1990 follow-up survey items factor analyzed in the previous section were not included in the base year student survey, construct generalizability could not be measured. Three parent involvement items and all self-concept items were administered to students on the base year survey, though no peer influence items were included in the base year. Further, most but not all of the school climate items were included on the base year school administrator survey. Upon measurement of the internal consistency reliability of the base year constructs, neither the few parent involvement items nor the base year school administrator school climate items formed a reliable construct. Self-concept was reliable overall and for gender, race, and socioeconomic status subgroups. Table 11 presents the internal consistency reliability for the base-year, student report self-concept construct.

Part 2: Prevalence Testing

The second part of this section presents the results from testing the change in prevalence of student misbehavior between 10^{th} grade and 12^{th} grade. The relationship between the prevalence of misbehavior throughout high school was evaluated using 1) frequencies to determine the direction of variable differences and 2) the chi-square test to assess the significance of these differences. Of the 3,919 students examined, a total of 574 tenth graders and 695 twelfth graders were identified as having a high rate of student misbehavior, an increase of 121 students from 10^{th} to 12^{th} grade. This increase in the prevalence of student misbehavior was significant $\chi^2(1, \underline{N} = 3{,}919) = 1069.62, \underline{p} < .001$.

Table 8

Exploratory Common Factor Structure for School Climate

	Loading[a]	Item-total r[b]		%prevalence[c]	
		1990	1992	1990	1992
Teachers encourage students to achieve academically	.70	.64	.54	82.9	67.5
Teacher morale is high	.67	.58	.55	71.9	36.1
Students are expected to do homework	.66	.60	.36	81.2	52.7
Student morale is high	.64	.55	.50	79.4	42.8
Students place high priority on learning	.63	.57	.49	67.2	44.8
Teachers do not have negative attitudes about students	.48	.46	.37	81.8	77.1
Students encouraged to enroll in academic classes	.46	.40	.37	91.4	75.6
Classroom activities are highly structured	.46	.36	.27	73.1	45.6
Teachers do not have difficulty motivating students	.46	.42	.39	42.6	21.3
There is no conflict between teachers and administrators	.45	.41	.26	86.0	76.6

Note. N = 3,919. For convenience of presentation, the wording of some items has been abbreviated.

[a]Factor loadings ≥ .35 are considered appreciable.

[b]Each value is a Pearson product-moment correlation with the respective item excluded from total factor score. Items that are not considered appreciable were not used in the total factor score calculation.

[c]Each value corresponds to the item difficulty index multiplied by 100. Please note that 1990 item responses were based on a 5-point scale while 1992 item responses were based on a 3-point scale. Interpretations and comparisons of item difficulty between 1990 and 1992 are cautioned.

Table 9

Coefficients of Congruence for School Climate Factor Across Random, Gender, Race, and SES Subsamples

		Generality	
Subsample	N	1990 School Climate	1992 School Climate
Full Sample	3,919	--	99
Invariance[a]	500	99	98
Males	1,726	99	99
Females	2,193	99	99
Whites	3,305	99	99
Minorities	614	99	98
Low SES	1,492	99	98
High SES	2,427	99	99

Note. Entries are Wrigley-Neuhaus coefficients (Guadagnoli & Velicer, 1991) with decimals omitted for convenient presentation. Values indicate similarity of the respective dimension extracted from the 1990 NELS sample to the counterpart dimension extracted for a given subsample. Common factor analyses for subsamples proceeded exactly as that for the full sample.

[a]Coefficients are averages of 10 random subsamples (n=500) compared to the 1990 solution for the full sample.

Table 10

Internal Consistency of School Climate Factor Overall and in Random, Gender, Race, and SES Subsamples

		Internal Consistency	
Subsample	N	1990 School Climate	1992 School Climate
Full Sample	3,919	.82	.75
Invariance[a]	500	.82	.75
Males	1,726	.82	.75
Females	2,193	.82	.74
Whites	3,305	.81	.75
Minorities	614	.85	.73
Low SES	1,492	.82	.74
High SES	2,427	.81	.75

Note. Entries are coefficient alpha computed for the indicated subsample.

[a]Coefficients are averages of 10 random subsamples (n=500) compared to the 1990 solution for the full sample.

Table 11

Internal Consistency of Base Year Self-Concept Factor Overall and in Random, Gender, Race, and SES Subsamples

Subsample	N	Internal consistency
Full Sample	3,616	.84
Invariance[a]	500	.84
Males	1,726	.82
Females	2,193	.85
Whites	3,305	.85
Minorities	614	.79
Low SES	1,492	.83
High SES	2,427	.84

Note. Entries are coefficient alpha computed for the indicated subsample.

[a]Coefficient is the average alpha coefficient of 10 random subsamples (n=500).

Part 3: Model Development

The third part of the results section discusses the modeling of student misbehavior throughout the high school years. The goal of the model development was to build a parsimonious model of adolescent misbehavior within the context of available explanatory variables. Hosmer and Lemeshow's (1989) model-building strategies for logistic regression were used as a guide during variable selection and model testing.

Student misbehavior was examined in light of potential risk factors as well as potential protective factors. These factors included (1) race, (2) school size, (3) family type (traditional or nontraditional), (4) age, (5) family socioeconomic status, (6) school type (public or private), (7) sex, (8) community type (urban, rural, or suburban), (9) school climate, (10) mathematics achievement, (11) reading achievement, (12) parent involvement, (13) peer influence, and (14) self-concept. A series of univariate logistic regression models were analyzed to select explanatory variables exhibiting a significant level of association with the response variable, student misbehavior. A series of multivariate logistic regression analyses were then investigated for their ability to explain student misbehavior in both 1990 and 1992, when most students were in 10^{th} and 12^{th} grade respectively. Based on the univariate and multivariate modeling outlined above, three models were built that explain adolescent misbehavior. The first model explains 10^{th} grade misbehavior from 10^{th} grade risk and protective factors. This model was significant with a global score statistic of 416.5 ($p < .001$) and correctly explained 64.6% of the observed responses. The second and third models explain 12^{th} grade misbehavior from 10^{rh} and 12^{th} grade risk and protective factors. The second model was significant with a global score statistic of 1226.5 ($p < .001$) and correctly explained 72.0% of the observed responses. While the second model included 10^{th} grade misbehavior, the third model excluded this variable because of its high

level of dominance. The third model was significant with a global score statistic of 475.0 ($p < .001$) and correctly explained 64.3% of the observed responses. Table 12 summarizes the results from these three models.

Explaining 10th Grade Misbehavior. Of the 12 explanatory variables included in the modeling of 10th grade misbehavior, five variables were significant contributors (two risk factors and three protective factors). The most important risk factor for 10th grade misbehavior was a negative peer influence. Likewise, the most important protective factor for 10th grade misbehavior was a positive peer influence. Students whose peers negatively influenced them were over three times more likely to misbehave than other students, while students whose peers had a positive influence on them were 80% less likely to misbehave than other students. A low self-concept was also found to put students at risk for behavior problems, with students who have a low self-concept being 1.6 times more likely to misbehave than other students. Students who attended small schools were 40% less likely to misbehave than were students who did not attend small schools. Similarly, 10th graders who had tested well in reading were found to be 30% less likely to have behavior problems than were other students.

Explaining 12th Grade Misbehavior. Of the 22 explanatory variables included in the modeling of 12th grade misbehavior, six variables were significant contributors (three risk factors and three protective factors). The most important risk factor for 12th grade misbehavior was 10th grade misbehavior. Twelfth graders who misbehaved in 10th grade were 14 times more likely to misbehave than were other students. Knowledge of previous behavior is such an important predictor of future behavior that it tended to dominate the misbehavior model. Thus, an alternative model was created without the explanatory dominance of previous behavior.

Table 12

Odds Ratios for Models Explaining Adolescent Misbehavior

Explanatory Variable	Model 1	Model 2 1990/1992	Model 3 1990/1992
RISK FACTORS			
Previous Misbehavior	--	**14.0****/--	--
Negative Peer Influence	**3.1****	1.0/**1.9****	**1.6****/**2.0****
Male	1.2	**1.7****	**1.5***
Low Self-Concept	**1.6***	1.2/1.1	1.4/1.2
Low Parent Involvement	1.2	.9/1.3	1.0/**1.4***
Low Mathematics Achievement	1.5	.8/.9	.8/1.4
Low Reading Achievement	1.5	1.3/1.1	1.4/1.1
Nontraditional Family Structure	1.4	--	--
PROTECTIVE FACTORS			
Positive Peer Influence	**.2****	**.5***/**.3****	**.4****/**.3****
Small School Size	**.6***	**.5***	**.5****
High Parent Involvement	.7	1.5/.6	1.3/**.6***
High Reading Achievement	**.7***	1.0/.9	.9/.9
High Mathematics Achievement	.8	1.2/.6	1.1/.7
High Self-Concept	--	--/.8	--/.9

Note. N = 3,919. Model 1 explains 1990 misbehavior from 1990 variables. Models 2 and 3 explain 1992 misbehavior from 1990 and 1992 variables (model 2 includes previous misbehavior; model 3 does not include previous misbehavior). $^{*}p < .01$ $^{**}p < .001$

Of the 21 explanatory variables included in the alternative model for 12th grade misbehavior, eight variables were significant contributors (four risk factors and four protective factors). In this alternative model, a negative peer influence was the most important risk factor for 12th grade misbehavior, while a positive peer influence was the most important protective factor against 12th grade misbehavior. Even 10th grade peer influence significantly contributed to explaining 12th grade misbehavior.

Similar to its relationship with 10th grade misbehavior, a small school size was also found to be protective against 12th grade misbehavior. Students who attended small schools were half as likely to misbehave than were other students. On the other hand, male students were found to be 1.5 times more likely to misbehave in 12th grade than were female students. Finally, parent involvement was both an important risk and protective factor for 12th grade misbehavior. Seniors whose parents were not very involved with their education were 1.4 times more likely to misbehave than other students, while seniors whose parents were very involved in their education were 40% less likely to misbehave than were other 12th grade students.

Discussion

Problem Behavior Theory

While it was hypothesized that misbehavior would be distinct from substance abuse in high school (though strongly correlated), scaling procedures yielded a misbehavior variable heavily defined by substance abuse. One explanation for this finding lies within the survey itself. While some of the more common general misbehavior actions and outcomes were represented in NELS (e.g., tardiness, truancy, and suspension), overall the misbehavior items were sparse and could have been explored more thoroughly with both students and teachers. For example, NELS

did not address some noncriminal externalizing behaviors such as hyperactivity and it did not probe deeply into behaviors such as verbal aggression, vandalism, and weapons possession.

Another explanation for the identification of a single misbehavior construct rests within a body of research focusing on a general or latent deviance syndrome. The theory surrounding this syndrome is called problem behavior theory (Jessor & Jessor, 1977). In their review of dozens of studies, Pollard and Austin (1990) concluded that adolescent delinquency and drug use share a common set of risk factors and similar prevalence curves. In particular, these two researchers reviewed four studies that investigated the existence of a single latent factor of misbehavior that underlies both delinquency and drug use. These studies all found a common deviance factor that accounted for between 25% and 75% of the variance in the behaviors studied.

Gfellner and Hundleby (1994) also confirmed the existence of a common deviance factor, consistent with problem behavior theory, in their cross-sectional study of 2,619 students from 7th through 12th grades. McGee and Newcomb (1992) looked at misbehavior and substance abuse from early adolescence to adulthood and found a second-order general deviance construct, though they argue that this finding is not contradictory to problem behavior theory but rather it is reflective of a more detailed appraisal of behaviors used in their study. Finally, Cooper, Wood, and Orcutt (1996) studied problem behaviors in a random sample of 2,052 urban adolescents. Four clusters of problem behaviors were studied -- sexual behavior, substance use, delinquent behaviors, and educational underachievement – though substance use and delinquent behaviors were much more strongly determined by a general deviance factor than were sexual behavior or educational underachievement.

Adolescent Psychopathology

The composition of adolescent misbehavior as found in this research is compelling in that it is representative of a common view of problem behaviors in school. In measuring youth behavior problems, survey developers are not always cognizant of the research base on child and adolescent psychopathology, but rather refer to the common view of behavior problems. That is, while externalizing behavior problems may be the ones that schools address more frequently and that are publicized in the media, internalizing behavior problems are equally as important and perhaps more important for future well-being when not identified and addressed in adolescence. Moreover, externalizing behavior problems are more prevalent in adolescent boys (McDermott & Weiss, 1995), as confirmed by this study. Yet, by focusing only on the typical problems that boys face during adolescence, instruments used to identify behavior problems are doing a disservice to many adolescents, especially adolescent girls, who more often manifest disturbance through withdrawal, depression, and indifference. It is plausible that adolescent substance abuse is comorbid with some internalizing behaviors (similar to the relationship between substance abuse and externalizing behaviors), though unfortunately this association could not be tested using NELS data. In future survey work, it is important that practitioners and researchers alike exploit the knowledge base in psychopathology in order to address behaviors in both sufficient depth and sufficient breadth.

Peer Influence

Peer influence is the effect on an individual resulting from social interactions with other individuals in their school or neighborhood. While often times a child's peer group includes friends in their classes, older peers or unfriendly peers may also affect a child. A negative peer

influence is one in which the student's social group engages in activities or displays behaviors that are considered delinquent or deviant, such as skipping school, taking drugs, or fighting.

The Denver Youth Study, a longitudinal study of the development of problem behavior, found that negative peer influence was a distinguishing factor between youths who became delinquent or who maintained their delinquency and youths who were nondelinquent or who stopped being delinquent over time (Huizinga, 1995). The National Youth Survey, a longitudinal study following a national probability sample of youth, has provided data on the prevalence and frequency of offenses. Offenses examined in this study included but were not limited to assault, fighting, drug use, alcohol use, and weapon carrying. In his analysis of data from the National Youth Survey, Menard (1992) found that adolescents who had a negative peer influence tended to have greater behavior problems, a phenomenon referred to as delinquent bonding (see Hirschi, 1969). Delinquent bonding often occurs when students are exposed to and involved with delinquent peer groups.

An important contribution of this study is the *relative* importance of known risk and protective factors for student misbehavior. Many of the important influences of student behavior problems, such as peer influence, school size, and parent involvement, were found to explain misbehavior in this study. Though, when forced to compete with other influences, no variable explained adolescent misbehavior better than the influence of their peers. Students whose friends valued academics seem to be protected against behavior problems, while students whose friends did not place a high priority on education were found to be at risk for behavior problems. Interestingly, the protective influence of positive peers was more important in guarding against problem behavior that was the risk associated with negative peers.

It was also found that *a student's 10th grade peer group still has a significant effect on a student's behavior in 12th grade*. This may be explained somewhat by the stability of peer groups during high school, which may be telling us that peer groups are difficult to change. If this is so, it becomes increasingly important for families to continually monitor their child's friends starting at a young age and to encourage friendships with academically-oriented children. To complement or reinforce parental monitoring, schools might also design adolescent behavior programs that focus on academically-oriented prevention and treatment for peer groups of students (rather than individually).

It is hoped that the findings from this research can be used to design appropriate treatment and prevention programs for adolescents, as well as raise awareness of the importance of a child's friends on his or her behavior. Future research on peer groups might focus on separating the social and academic influences of peers and determining whether these influences interact differentially upon student misbehavior. Research might also investigate how peer groups can be targeted to control and improve problem behavior.

Study Limitations

A primary limitation of this study is that the research is nonexperimental and therefore explanations for the relationship between student misbehavior and explanatory variables is potentially confounded. For example, it is impossible to determine unequivocally whether a negative peer influence causes indiscipline. It is possible that delinquent bonding does not exacerbate delinquency, but rather it is merely a descriptive phenomenon of a social group with like interests. Likewise, this study cannot say definitively whether low levels of parent involvement cause student misbehavior. It is possible that student misbehavior strains the relationship between student and parents, thus itself causing lower parent involvement. It is also

possible that the relationship between student misbehavior and parent involvement is reciprocal or explained by a third variable such as the number of siblings in the house or the number of hours per week the parents work.

A second limitation of this study is the potential sample unrepresentativeness resulting from eliminating subjects with missing data. For instance, males and students from low socioeconomic status families were underrepresented in the study, while whites and students from the Midwest were overrepresented. Similarly, the self-report nature of the data poses further limitations (see Huizinga & Elliot, 1986). Certain items, particularly those related to sensitive topics, such as the frequency of substance use, might underestimate the prevalence of these behaviors.

References

Berg, I., & Nursten, J. (1996). Unwillingly to school (4th ed.). London, England: The Royal College of Psychiatrists.

Butchart, R. E., & McEwan, B. (1998). Classroom discipline in American schools: Problems and possibilities for democratic education. Albany, NY: State University of New York Press.

Cooper, M. L., Wood, P., & Orcutt, H. K. (1996, August). Covariation among adolescent problem behaviors: What does it mean? Paper presented at the Annual Meeting of the American Psychological Association, Toronto, Ontario, Canada. (ERIC Document Reproduction Service No. ED 407 617)

Dryfoos, J. G. (1990). Adolescents at risk. New York: Oxford University Press.

Freud, S. (1938). The basic writings of Sigmund Freud. New York, NY: The Modern Library.

Gfellner, B. M., & Hundleby, J. D. (1994). Developmental and gender differences in drug use and problem behavior during adolescence. Journal of Child & Adolescent Substance Abuse, 3(3), 59-74.

Giancola, S. (1998). Student Misbehavior: An Exploratory Study of Individual, Familial, Social, and Institutional Influences. Ann Arbor, MI: UMI Dissertation Services.

Guadagnoli, E., & Velicer, W. F. (1991). A comparison of pattern matching indices. Multivariate Behavioral Research, 26, 323-343.

Hirschi, T. (1969). Causes of delinquency. Berkeley: CA: University of California Press.

Hosmer, D. W., & Lemeshow, S. (1989). Applied Logistic Regression. New York: John Wiley & Sons.

Huizinga, D., & Elliott, D. (1986). Reassessing the reliability and validity of self-report delinquency measures. Journal of Quantitative Criminology, 2, 293-327.

Hyman, I. A. (1997). School Discipline and School Violence. Boston, MA: Allyn and Bacon.

Jessor, R., & Jessor, S. L. (1977). Problem behavior and psychosocial development. San Diego, CA: Academic Press.

Maslow, A. H. (1970). Motivation and personality. New York: Harper and Row.

McDermott, P. A., & Weiss, R. V. (1995). A normative typology of healthy, subclinical, and clinical behavior styles among American children and adolescents. Psychological Assessment, 7(2), 162-170.

McGee, L., & Newcomb, M. D. (1992). General deviance syndrome: Expanded hierarchical evaluations at four ages from early adolescence to adulthood. Journal of Consulting and Clinical Psychology, 60(5), 766-776.

Menard, S. (1992). Demographic and theoretical variables in the age-period-cohort analysis of illegal behavior. Journal of Research in Crime and Delinquency, 29, 178-199.

Moles, O. C. (1990). Student discipline strategies: Research and practice. Albany, New York: State University of New York Press.

National Center for Education Statistics. (1996). National Education Longitudinal Study (NELS:88/94) methodology report. Washington, D.C.: U.S. Department of Education.

Pollard, J. A., & Austin, G. A. (1990, Spring). Substance abuse among juvenile delinquents and gang members (Prevention Research Update Number Six). Western Center for Drug-Free Schools and Communities. (ERIC Document Reproduction Service No. ED 319 149)

Skinner, B. F. (1971). Beyond freedom and dignity. New York: Knopf.

Snyder, T. D., Hoffman, C. M., & Geddes, C. M. (1996). Digest of Education Statistics. Washington, DC: National Center for Education Statistics.

Wood, J. M, Pataryn, D. J., & Gorsuch, R. L. (1996). Effects of under- and overextraction on principal axis factor analysis with varimax rotation. Psychological Methods, 1, 354-365.

Zill, N., & Nolin, M. (1994). School learning environments as reported by teachers, parents, and students. (ERIC Document Reproduction Service No. ED 383 966)